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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,485	12/30/1999	M. Gabriella Colucci	108.236.119	7906

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EXAMINER	
BELYAVSKYI, MICHAIL A	
ART UNIT	**PAPER NUMBER**
1644	

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/476,485	COLUCCI ET AL.	
	Examiner	Art Unit	
	Michail A Belyavskyi	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,9-14 and 61-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 9-14 and 61-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

RESPONSE TO APPLICANT'S AMENDMENT

1. Applicant's amendment, filed 09/15/03 is acknowledged.

Claims 1-5,9-14 and 61-72 are pending.

2. Claims 1-5 ,9-14 and 61-72 read on an essentially pure composition of one or more members of the FRIL family, wherein FRIL family member is Pv-FRIL (SEQ ID NO: 6) from *Phaseolus vulgaris* or D1-FRIL (SEQ ID NO: 2) from *Dolichos lab lab* and Yam FRIL (SEQ ID NO:8) from *Sphenostylis stenocarpa* are under consideration in the instant application. are under consideration in the instant application.

In view of the amendment, filed 09/15/03 the following rejections remain

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-5 , 9-14 and 61-72 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an essentially pure composition of one or more members of the FRIL family of progenitor cell preservation factors, wherein FRIL is D1 –FRIL (SEQ ID No.2) from *Dolichos lab lab* or PV-FRIL (SEQ ID No.6) from *Phaseolus vulgaris* or Yam-FRIL (SEQ ID No. 8) from *Sphenostylis stenocarpa* that can be used to preserve progenitor cells does not reasonably provide enablement for an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein each FRIL family member binds to a normally glycosylated FLT3 receptor, wherein each FRIL family member preserves progenitor cells and wherein a FRIL member isolated form *Dolichos lab* lab comprises SEQ ID NO:24 , claimed in claims 1 and 61; or for an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein FRIL family is from a legume, claimed in claims 2-5, 62-71; or a pharmaceutical formulation comprising an essentially pure composition of one or more members of FRIL family of progenitor cell

preservation factors, wherein each FRIL family member binds to a normally glycosylated FLT3 receptor, wherein each FRIL family member preserves progenitor cells, claimed in claims 9 and 72. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims for the same reasons set forth in the previous Office Action, mailed 03/11/03.

Applicant's arguments, filed 09/15/03 have been fully considered, but have not been found convincing .

Applicant asserts that: (i) the specification enables the invention since it clearly defined the characteristics of any proteins that are FRIL family members; (ii) the specification provided detailed guidance for screening and identifying new FRILs; and (iii) although some additional experimentation may be necessary it is not undue if the specification provides a reasonable amount of guidance.

Contrary to Applicant's assertions, the specification fails to provide sufficient guidance as to which core structure of one or more members of FRIL family of progenitor cell preservation factors is essential for maintain its biological activity , i.e. to preserve progenitor cells, and which changes can be made in the structure of an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors and still maintained the same function.

It is noted that amendments to claims 1 and 9 have added the function limitation of the FRIL family. However, these amendments do not obviate the issues of enablement rejection set forth in the previous office action mailed 03/11/03. Applicant is relying upon certain biological activities and the disclosure of a 3 species, i.e. FRIL is D1 –FRIL (SEQ ID No.2) from *Dolichos lab lab* or PV-FRIL (SEQ ID No.6) from *Phaseolus vulgaris* or Yam-FRIL (SEQ ID No. 8) from *Sphenostylis stenocarpa* to support an entire genus. The claims as written encompass a broad genus of FRIL family with an unlimited number of possibilities with regard to the length and numerous differences in amino acid sequences of the polypeptide. Further, the enablement issues of making the protein still remain because the specification does not teach and provide sufficient guidance as to which amino acid of core structure of one or more members of FRIL family of progenitor cell preservation factors would have been altered such that the resultant polypeptide would have retained the function to preserve progenitor cells. Furthermore, Moore (US Patent 6,084,060) teaches that whether plant lectins act on mammalian cells via de novo means, or simply mimic their functional mammalian homolog is not yet know. No lectin has been successfully developed as human therapeutics (see column 2, lines 24-30 in particular).

Since the instant fact pattern fails to indicate that representative number of structurally related compounds is disclosed, the artisan would not know the identity of a reasonable number of representative compounds falling within the scope of the instant claims and consequently would not know how to make them. An assay for *finding* a product (screening) is not equivalent to a

positive recitation of *how to make* a product. Therefore, absent the ability to predict which of these peptides would function as claimed, and given the lack of data on regions critical for activity, for one of skill in the art to practice the invention as claimed would require a level of experimentation that is excessive and undue.

It is recognized in the prior art that the function of a protein depends on the sequence of its amino acids in a certain pattern, conformation of the protein due to the amino acid sequence and the functional properties of the different parts of the protein. The specification does not teach which changes in the amino acid one or more members of FRIL family of progenitor cell preservation factors would not alter all the activities of the peptide. Therefore, the specification fails to provide sufficient guidance as to which core structure of one or more members of FRIL family of progenitor cell preservation factors is essential for maintain its biological activity and which changes can be made and still maintained the same function.

Consequently, without additional guidance in the specification, and the dearth of information in the art, for one of skill in the art to practice the invention as claimed, would require experimentation that is excessive and undue. The amount of guidance or direction needed to enable an invention is inversely related to the mount of knowledge in the state of the art as well as the predictability in the art (In re Fisher, 427 F.2d 833, 839, 166 USPQ 18,24 (CCPA 1970)).

In view of the quantity of experimentation necessary, the unpredictability of the art, the lack of sufficient guidance in the specification, the limited working examples, and the limited amount of direction provided given the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

5. Claims 1-5 , 9-14 and 61-72 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention for the same reasons set forth in the previous Office Action, mailed 03/11/03.

Applicant's arguments, filed 09/15/03 have been fully considered, but have not been found convincing .

Applicant asserts that the specification provides a representative number of different FRIL family members and require that each of the FRIL family members be able to bind to a normally glycosylated FLT3 receptor and be able to preserve progenitor cells.

Contrary to Applicant assertion, as was sated in the previous Office Action, Applicant is in possession of : an essentially pure composition of one or more members of the FRIL family of progenitor cell preservation factors, wherein FRIL is D1 –FRIL (SEQ ID No.2) from *Dolichos lab lab* or PV-FRIL (SEQ ID No.6) from *Phaseolus vulgaris* or Yam-FRIL (SEQ ID No. 8) from *Sphenostylis stenocarpa* that can be used to preserve progenitor cells .

Applicant is not in possession of : an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein each FRIL family member binds to a normally glycosylated FLT3 receptor, wherein each FRIL family member preserves progenitor cells and wherein a FRIL member isolated form *Dolichos lab* lab comprises SEQ ID NO:24 , claimed in claims 1 and 61; or for an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein FRIL family is from a legume, claimed in claims 2-5, 62-71; or a pharmaceutical formulation comprising an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein each FRIL family member binds to a normally glycosylated FLT3 receptor, wherein each FRIL family member preserves progenitor cells, claimed in claims 9 and 72.

The specification fails to described which core structure of one or more members of FRIL family of progenitor cell preservation factors is essential for maintain its biological activity , i.e. to preserve progenitor cells and define all members of the an essentially pure FRIL family of progenitor cell preservation factors . The lack of sufficient limitations would therefore allow for all other FRIL family members. Therefore, the skilled artisan cannot envision all the contemplated FRIL possibilities recited in the instant claims.

A description of a protein by functional language in the absence of a structure is not considered sufficient to show possession of the claimed invention. See Fiers, 984 F.2d at 1169-71, 25 USPQ2D at 1605-06. It is only a definition of a useful result rather than a definition of what achieves that result. Many species may achieve that result. The definition requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See *In re Wilder*, 736 /f.2d 1516, 1521, 22 USPQ 369, 372-73 (Fed. Cir. 1984) affirming the rejection because the specification does "little more than outline[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate.") Accordingly, naming a type of material generally known to exist, in the absence of knowledge as to what the material consists of (e.g. structural feature), is not a description of that material.

Applicant has disclosed a limited number of species; therefore, the skilled artisan cannot envision all the contemplated amino acid sequence possibilities recited in the instant claims. Consequently, conception in either case cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. The sequences themselves are required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993).

A description of a genus of protein sequences may be achieved by means of a recitation of a representative number of polypeptide sequences, defined by amino acid sequence, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus. Regents of the University of California v. Eli Lilly&Co., 119F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997).

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.

Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5, 9-14 , 61-64, 66-69 and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Moore et al. (Applicant IDS) as is evidenced by the known fact disclosed in specification on page 19, lines 17-25 for the same reasons set forth in the previous Office Action, mailed 03/11/03.

Applicant's arguments, filed 09/15/03 have been fully considered, but have not been found convincing .

Applicant asserts that Moore et al. do not constitute prior art as this reference was published in December 1997, which is after June 24,1997 priority date of the parent US Paten NO.6,310,195 to which the instant application claims priority.

Contrary to Applicants assertion, the parent US Paten NO.6,310,195 does not support the claimed limitations of the instant application, i.e. members of the FRIL family of progenitor cell preservation factors wherein FRIL family member is Pv-FRIL (SEQ ID NO: 6) from *Phaseolus vulgaris* or D1-FRIL (SEQ ID NO: 2) from *Dolichos lab lab* and Yam FRIL (SEQ ID NO:8) from *Sphenostylis stenocarpa.*

If applicants disagree, applicants should present a detailed analysis as to why the claimed subject matter has clear support in the parent application US Paten NO.6,310,195.

It is noted that the amended claims 1 and 9 do not required that of one or more member of FRIL is isolated from *Dolichos lab lab* and comprises the amino acid sequense of SEQ ID NO:24. The amended claims 1 and 9 reads on any sources from which FRIL family member can be isolated . Only if said member is isolated from *Dolichos lab lab* than it should comprise SEQ ID NO:24.

Moore et al. teach an essentially pure composition of plant legume lectins that are the members of FRIL family derived from red kidney beans that have progenitor cell preservation activity. (see entire document).

The know fact disclosed in specification on page 19, lines 17-25 discloses that the FRIL family of progenitor cell preservation factors consists of a family of lectins isolated from beans, including a family of lectins isolated from *Dolichos lab lab* , or from *Phaseolus vulgaris* or from *Sphenostylis stenocarpa.*

It would be immediately evidenced to one of ordinary skill in the art at the time the invention was made that an essentially pure composition of plant legume lectins that derived from red kidney beans is a member of FRIL family of progenitor cell preservation factors including a family of lectins isolated from *Dolichos lab lab* , or from *Phaseolus vulgaris* or from *Sphenostylis stenocarpa.*

Claims 9- 14 and 62-64, 66-69 and 71 are included because the claimed functional limitation would be inherent properties of the referenced composition because a pharmaceutical formulation comprising referenced essentially pure composition of plant lectin from red kidney beans would inherently performed the intended use. If the prior art structure is capable of performing the intended use, then it meets the claim. When a claim recites using an old composition or structure (e.g. an essentially pure composition of one or more members of the FRIL family) and the use is directed to a result or property of that composition or structure then the claim is anticipated. See MPEP 2112.02. Also, see Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc. 58 USPQ2d 1508 (CA FC 2001); Ex parte Novitski 26 USPQ 1389 (BPAI 1993); Mehl/Biophile International Corp. V. Milgraum, 52 USPQ2d 1303 (Fed. Cir. 1999); Atlas Powder Co. V. IRECO, 51 USPQ2d 1943 (Fed. Cir. 1999). Further, a composition is a composition irrespective of its intended use. The term "pharmaceutical composition" carries little patentable weight in the absence of evidence of structural difference.

Claim 61 is included because a composition is the same composition irrespective of how it is made.

The reference teachings anticipate the claimed invention.

The following new ground of rejection are necessitated by the amendment filed 09/15/03.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claim 72 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a New Matter rejection.**

" A pharmaceutical formulation comprising an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein each FRIL family member binds to a normally glycosylated FLT3 receptor, wherein each FRIL family member preserves progenitor cells and a chemotherapeutic selected from the group recited in claim 72" claimed in claim 72 represents a departure from the specification and the claims as originally filed. The passages pointed by the applicant do not provide a clear support for "a pharmaceutical formulation comprising an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein each FRIL family member binds to a normally glycosylated FLT3 receptor, wherein each FRIL family member preserves progenitor cells and a chemotherapeutic selected from the group recited in claim 72. The specification and the claims as originally field only support for " a pharmaceutical formulation comprising an essentially pure composition of one or more members of FRIL family of progenitor cell preservation factors, wherein each FRIL family member binds to a normally glycosylated FLT3 receptor, wherein each FRIL family member preserves progenitor cells and a pharmaceutically acceptable carrier.

10. No claim allowed

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michail Belyavskyi whose telephone number is (703) 308-4232. The examiner can normally be reached Monday through Friday from 9:00 AM to 5:30 PM. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center telephone number is (703) 305-3014.

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November 17, 2003

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